REMARKS

Claim 15 is objected to and has been corrected in accordance with the Examiner's request.

The applicants respectfully request the Examiner to reconsider the objection to the drawings for allegedly not showing every feature of the invention. The applicants note that pilot channel circuitry 107 is shown on FIG. 1 and pilot sequence 201 is shown on FIG. 2. Both are described generally on page 5 of the description, which is followed by a lengthy and mathematically detailed description of the construction of pilot sequences extending from pages 6-14. The applicants submit that the drawings when considered in view of the detailed description are sufficient to illustrate every feature of the invention to one of skill in the art. Moreover, the applicants submit that the subject matter described on pages 6-14 does not lend itself well to illustration through drawings but rather is best described by the mathematical expressions on these pages and the accompanying text.

Claims 7, 8 and 10 are regarded as allowable if properly rewritten. Claims 1-6, 9 and 11-18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Mody et al. (U.S. Publication Number 2002/0181509; hereinafter "Mody"). Respectfully disagreeing with these rejections, reconsideration is requested by the applicants. Nonetheless, claims 1, 11 and 15 have been amended to more clearly describe what is claimed and to further highlight the distinctions between what is claimed and what the cited art teaches. Also, new dependent claims 19-30 have been added for the Examiner's consideration.

Regarding the rejection of claims 1, 11 and 15, the Examiner cites Mody [0007 and 0038-0041], which read as follows (emphasis added):

> [0007] In typical communication systems, training symbols, or preamble, at the beginning of data frames, are usually added as a prefix to the data symbols. The data symbols, of course, include the useful data or information (e.g., voice, data, video, etc.), which is meant to be transmitted to a remote location. The training symbols in SISO systems are used to provide synchronization of the received signals with respect to the transmitted signals, as well as to provide channel parameter estimation.
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> ...
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> [0038] Each TDB provides an input to a respective adder 34. The other input into each of the adders 34 is

connected to the output of a pilot/training symbol inserter 32, which provides pilot symbols and training symbols to be inserted into the frames on the TDBs. Symbols inserted periodically within the data symbols will be referred to herein as "pilot symbols." These periodic pilot symbols may be inserted anywhere in the stream of the data symbols. If a continuous burst of symbols is inserted by the pilot/training symbol inserter 32, this type of symbol will be referred to herein as "training symbols" which constitute the preamble. The training symbols preferably are inserted at the beginning of the frame. However, the training symbols may be inserted onto the frame in a location other than at the beginning of the frame, such as at the end or in the middle of the frame.

[0039] The pilot/training symbol inserter 32 may be configured so that it is capable of storing multiple sets of training symbols or pilot symbols. In this case, a particular set may be selected, for example, based on desirable communication criteria established by a user. The training symbols for each respective sub-channel may preferably be unique to the particular sub-channel. In order to accommodate amplitude differences between the sub-channels, the training symbols may be designed and adjusted to maintain a constant amplitude at the output of each sub-channel.

[0040] Training symbols are preferably transmitted once for every frame. Training symbols are used for periodic calibration (synchronization and channel parameter estimation) whereas pilot symbols are used for minor adjustments to deal with the time-varying nature of the channel. The training symbols may be indicative of calibration values or known data values. These calibration values or known values may be transmitted across the channel, and used to calibrate the communication system 6. Any necessary refinements may be made to the communication system 6 if the received calibration values do not meet desirable specifications.

[0041] Furthermore, the training symbols may be used as specific types of calibration values for calibrating particular channel parameters. By initially estimating these channel parameters, offsets in the time domain and frequency domain may be accounted for so as to calibrate the communication system 6. The training sequence may or may not bypass an Inverse Discrete Fourier Transform (IDFT) stage 38, which is a part of the embodiment of the OFDM modulator 16 of FIG. 3. A training sequence that bypasses the IDFT stage 38 and is directly input into a digital to analog converter (DAC) 44 is referred to herein as a directly modulatable training sequence. **Examples of such training sequences may be "chirp-like" sequences. These sequences cover each portion of the bandwidth used by the communication system 6. Hence, channel response can be easily determined. In general, a chirp sequence in the time domain is given by the equation:**

$$S_n=\cos(\pi n/N^2)+ j \sin(\pi n^2/N),\ n=0,1, \ldots, N-1,$$

In contrast, amended independent claim 1 recites (emphasis added) "**assigning** a **first communication unit a first pilot sequence** for transmission on **a portion of a communication resource**, wherein the first pilot sequence is selected from a group of pilot sequences constructed from a set of Generalized Chirp-Like (**GCL) sequences**; and **assigning** a **second communication unit a second pilot sequence** for transmission on at least **the portion of the communication resource**, the second pilot sequence taken from the group of pilot sequences constructed from **the set of GCL sequences**." Amended independent claim 15 recites (emphasis added), "A communication unit comprising: pilot channel circuitry for transmitting or receiving **a pilot channel sequence via a portion of a communication resource**,... wherein at

least **the portion of the communication resource** is utilized for the transmission or reception of **a second pilot channel sequence** taken from the group of pilot sequences constructed from **the set of GCL sequences**." The applicants submit that Mody, as cited by the Examiner, does not teach or suggest the transmission/reception of multiple pilot sequences, constructed from the same set of GCL sequences, via the same portions of a given communication resource. Moreover, the applicants fail to see how Mody, as cited, teaches or suggests the assigning of pilot sequences, constructed from the same set of GCL sequences, to two different communication units (one pilot sequence each) for use in transmitting on the same portion of a given communication resource.

In addition, amended independent claim 11 recites (emphasis added) "receiving a pilot sequence as part of an over-the-air transmission, wherein the pilot sequence is constructed from a set of Generalized Chirp-Like **(GCL) sequences** and is **assigned to either a base unit or a remote unit**, wherein the pilot sequence is based on a **truncated GCL sequence or a cyclically extended GCL sequence**." The applicants submit that Mody, as cited by the Examiner, does not teach or suggest the assigning of a pilot sequence, constructed from a set of GCL sequences, to either a base unit or a remote unit. In addition, the applicants fails to see where Mody, as cited, teaches or suggests that the pilot sequence assigned is based on a truncated GCL sequence or a cyclically extended GCL sequence.

Since none of the references cited, either independently or in combination, teach all of the limitations of independent claims 1, 11 or 15, or therefore, all the limitations of their respective dependent claims, it is asserted that neither anticipation nor a prima facie case for obviousness has been shown. No remaining grounds for rejection or objection being given, the claims in their present form are asserted to be patentable over the prior art of record and in condition for allowance. Therefore, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 -- Motorola, Inc**.

Respectfully submitted,
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